

## COASTAL PLAIN LEVEE FOREST (Brownwater Subtype)

Sites: Natural levee and point bar ridge deposits adjacent to channels of brownwater (alluvial) rivers.

Soils: Coarse-textured alluvial soils. Most levees are mapped as Chewacla (Fluvaquentic Dystrochrept) or Congaree (Typic Udifluent).

Hydrology: Palustrine, seasonally to intermittently flooded. Brownwater rivers, in contrast to blackwater, tend to have periods of sustained high flow, usually in the winter and spring. The water tends to be relatively high in pH, in nutrients, and in mineral sediment.

Vegetation: Forest dominated by combinations of bottomland hardwoods such as *Platanus occidentalis*, *Celtis laevigata*, *Fraxinus pennsylvanica*, *Betula nigra*, *Acer negundo*, *Carya aquatica*, and *Liquidambar styraciflua*. Understory trees include *Asimina triloba* and *Carpinus caroliniana*. Shrubs may be moderately dense, with *Lindera benzoin*, *Aesculus pavia*, and *A. sylvatica* most characteristic. *Arundinaria gigantea* may be abundant in patches. Vines are often abundant and large, with typical species including *Toxicodendron* (*Rhus*) *radicans*, *Vitis rotundifolia*, *Parthenocissus quinquefolia*, *Bignonia* (*Anisostichus*) *capreolata*, *Campsis radicans*, and *Berchemia scandens*. The herb layer is commonly dense and tall, with *Elymus hystrix* (*Hystrix patula*), *Boehmeria cylindrica*, *Chasmanthium* (*Uniola*) *latifolium*, and *Viola* spp. characteristic. Spring ephemeral herbs may be abundant, especially on very fertile deposits, and may contain many herbaceous species generally associated with Piedmont bottomlands and rich slopes.

Dynamics: Levee communities are dominated by forces of the river. Levees outside of bends may be undercut and eroded by the river; those inside may be abandoned by the channel. Point bar processes may create new sites for invasion by Levee Forests. In addition, vegetation may be directly disturbed by flooding (scouring and battering by debris). The vegetation may consist of mature climax forest, or may be in various stages of primary or secondary succession.

The periodic input of nutrients in flood-deposited sediment makes levee sites very fertile, and growth is rapid in these communities.

The construction of dams on the upper portions of large rivers has changed the dynamics of flooding and sediment supply. These changes may eventually lead to changes in the floodplain communities.

These communities are frequently subject to invasion by exotic plants, especially if disturbed and opened up to sunlight. *Lonicera japonica*, *Microstegium vimineum*, and *Ligustrum sinense* may come to dominate large areas to the exclusion of the native herb layer.

Range: Throughout the Coastal Plain along large and medium size rivers.

Associations: Grades into Cypress--Gum Swamp (Brownwater subtype) away from the channel. Borders river channel or Sand and Mud Bar communities. May grade to Coastal Plain Small Stream Swamp (Brownwater subtype) in tributaries and upstream parts of smaller rivers.

Distinguishing Features: Natural Levee Forests are distinguished from Cypress-- Gum Swamps by the dominance of the bottomland and alluvial hardwoods listed above, over *Nyssa* and *Taxodium*, as well as their higher, drier location. They are distinguished from Bottomland Hardwoods communities by their location on natural levee or point bar deposits adjacent to the river, receiving alluvial deposition. The presence of *Platanus* and *Betula nigra* is usually characteristic of levees, but these species may be present in disturbed Bottomland Hardwoods communities, as well as in Small Stream Swamps.

Natural Levee Forests and Bottomland Hardwoods are distinguished from Small Stream Swamp communities by their occurrence on large river floodplains with well developed alluvial landforms. The boundary is fairly arbitrary and is difficult to place. Levees high enough to support vegetation distinct from that in the floodplain behind them and broad enough to fit several tree canopy widths beyond the transition to adjacent communities should be considered Natural Levee Forests.

The Brownwater Subtype is most easily distinguished from the Blackwater Subtype by the nature of the river itself (see comments). Floristic and vegetational differences between the subtypes have not been well studied but appear to be real. In general, brownwater river floodplains support more diverse communities. Nifong and Taggart (1981), noted *Platanus occidentalis*, *Fraxinus pennsylvanica*, *Carya aquatica*, and *Acer negundo*, present along the Cape Fear River, were replaced